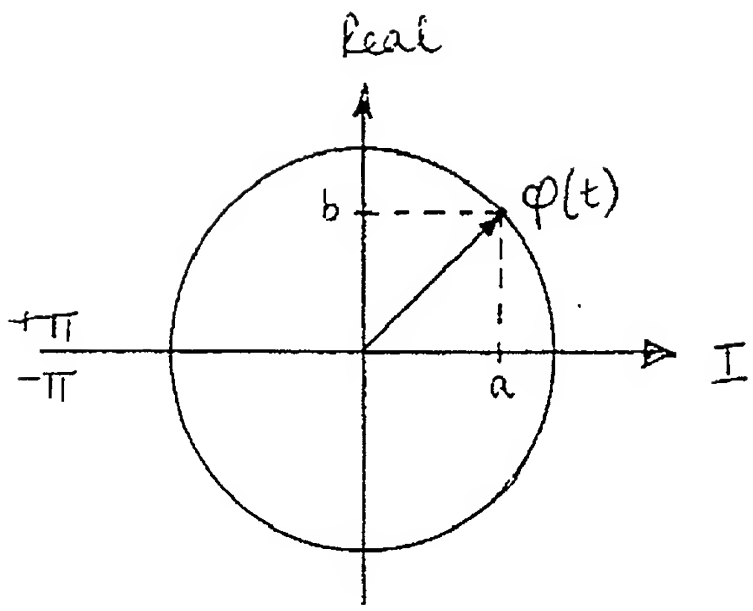

$$\varphi(t) = \tan^{-1}\left(\frac{a}{b}\right)$$

Fig. 1

Fig 2a

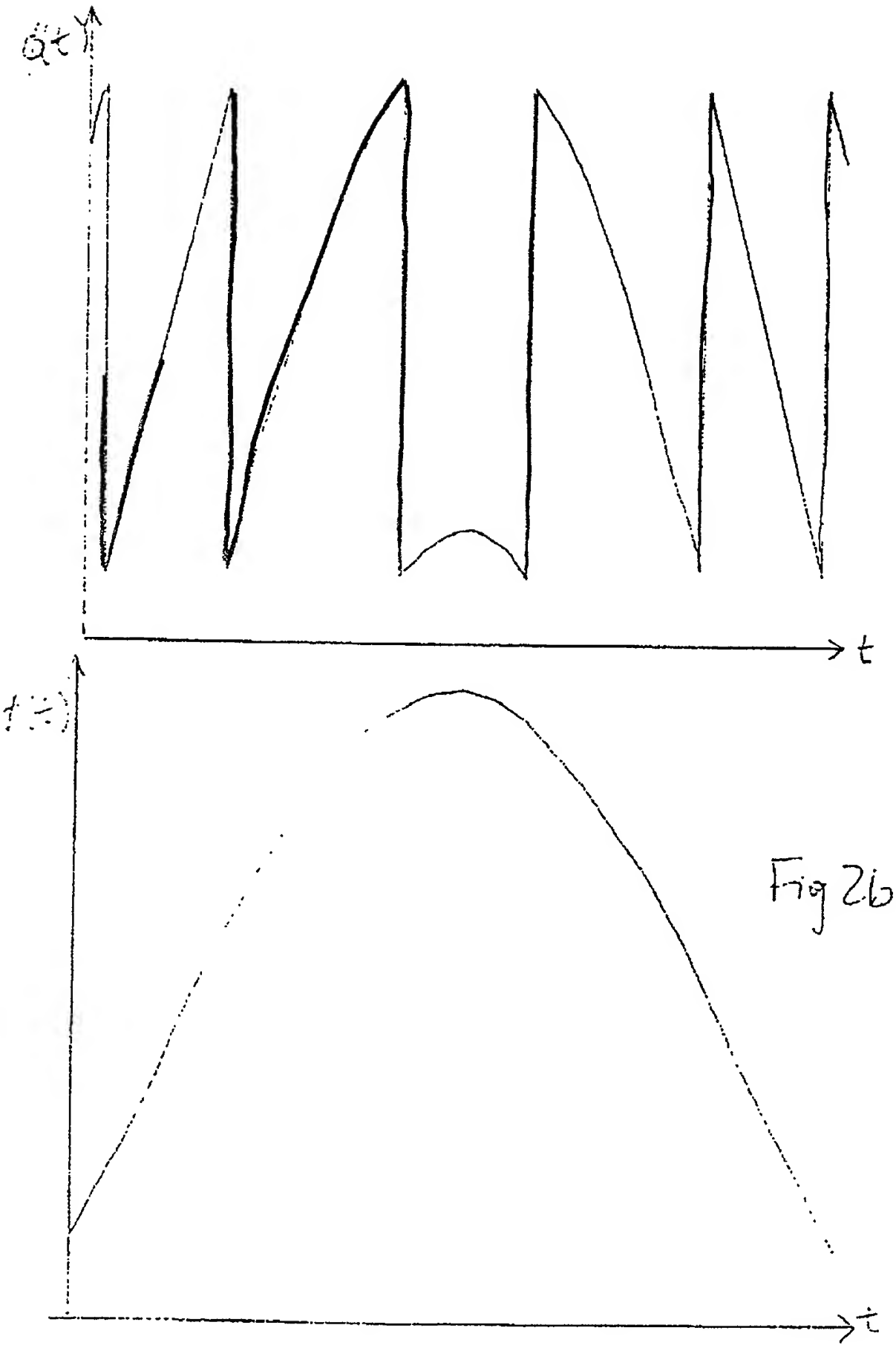

Fig 2b.

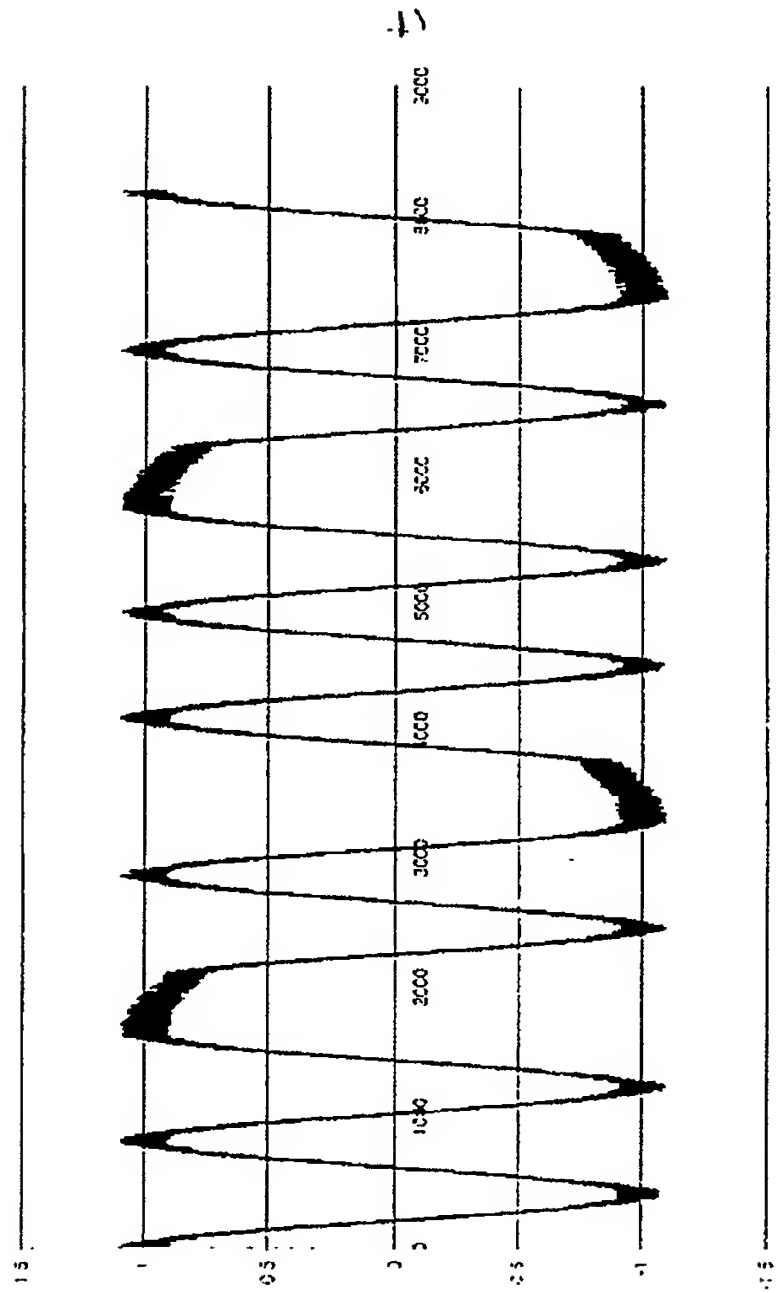

Fig. 3 Real part of signal

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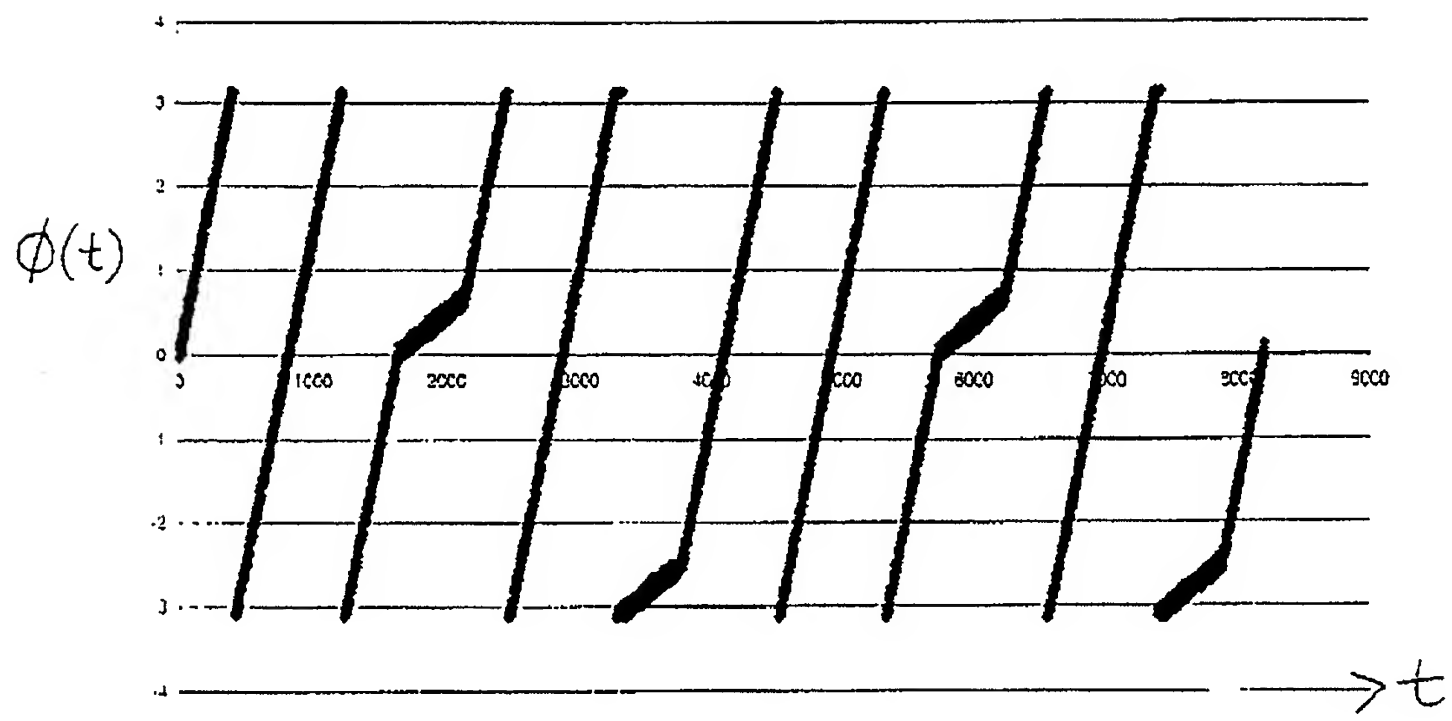

Fig. 4 Phase plot of raw data

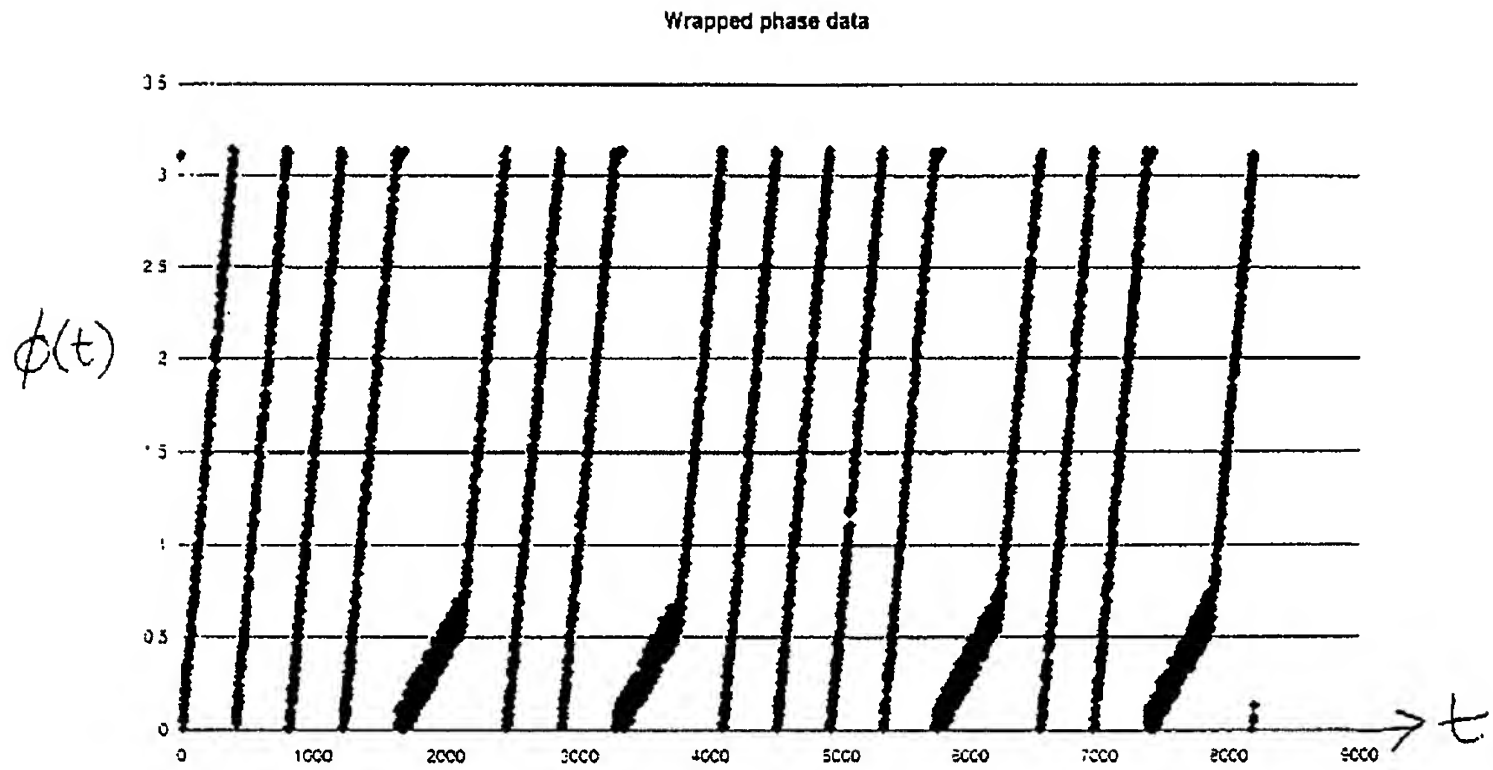

Fig. 5 Phase data wrapped from 0 to π

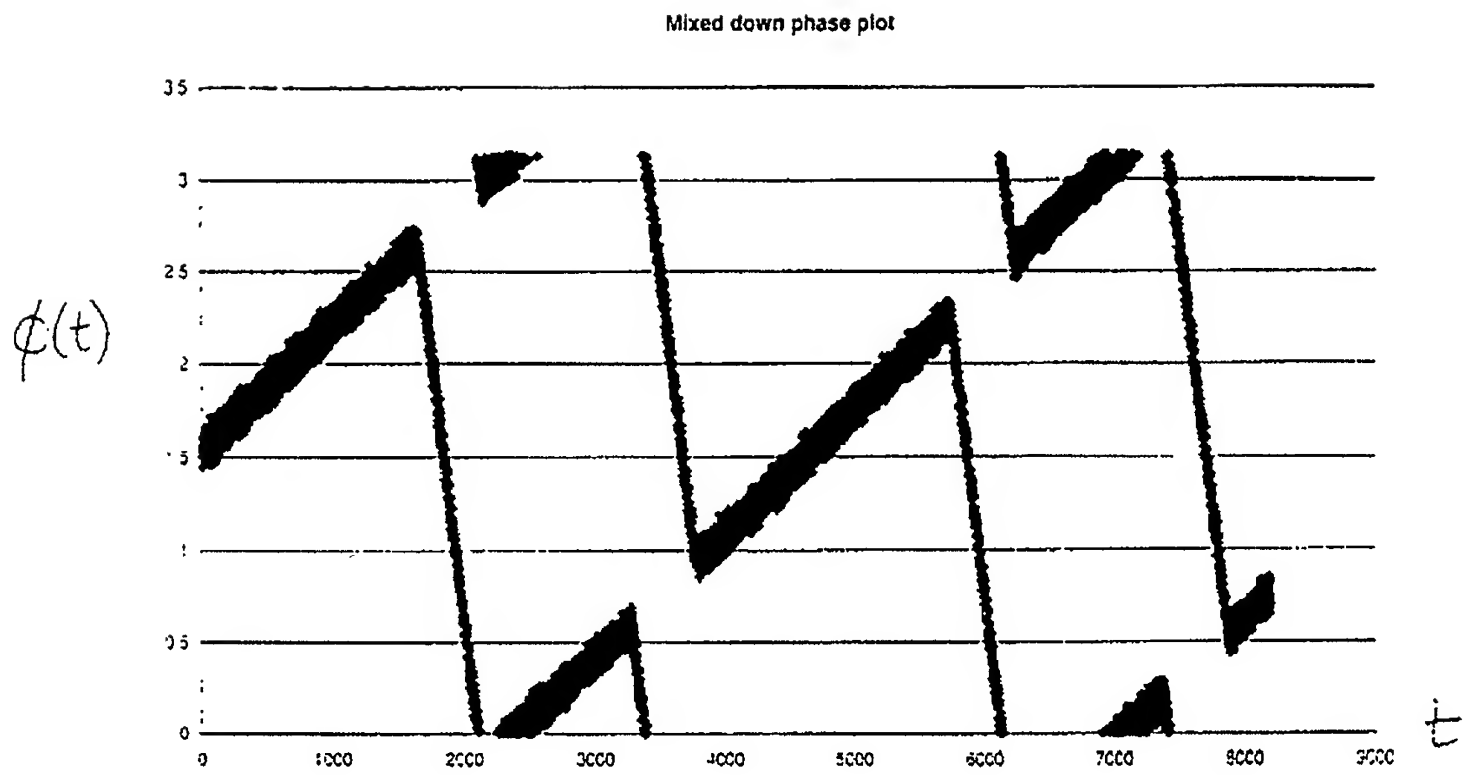

Fig. 6 Phase plot after one iteration of the algorithm

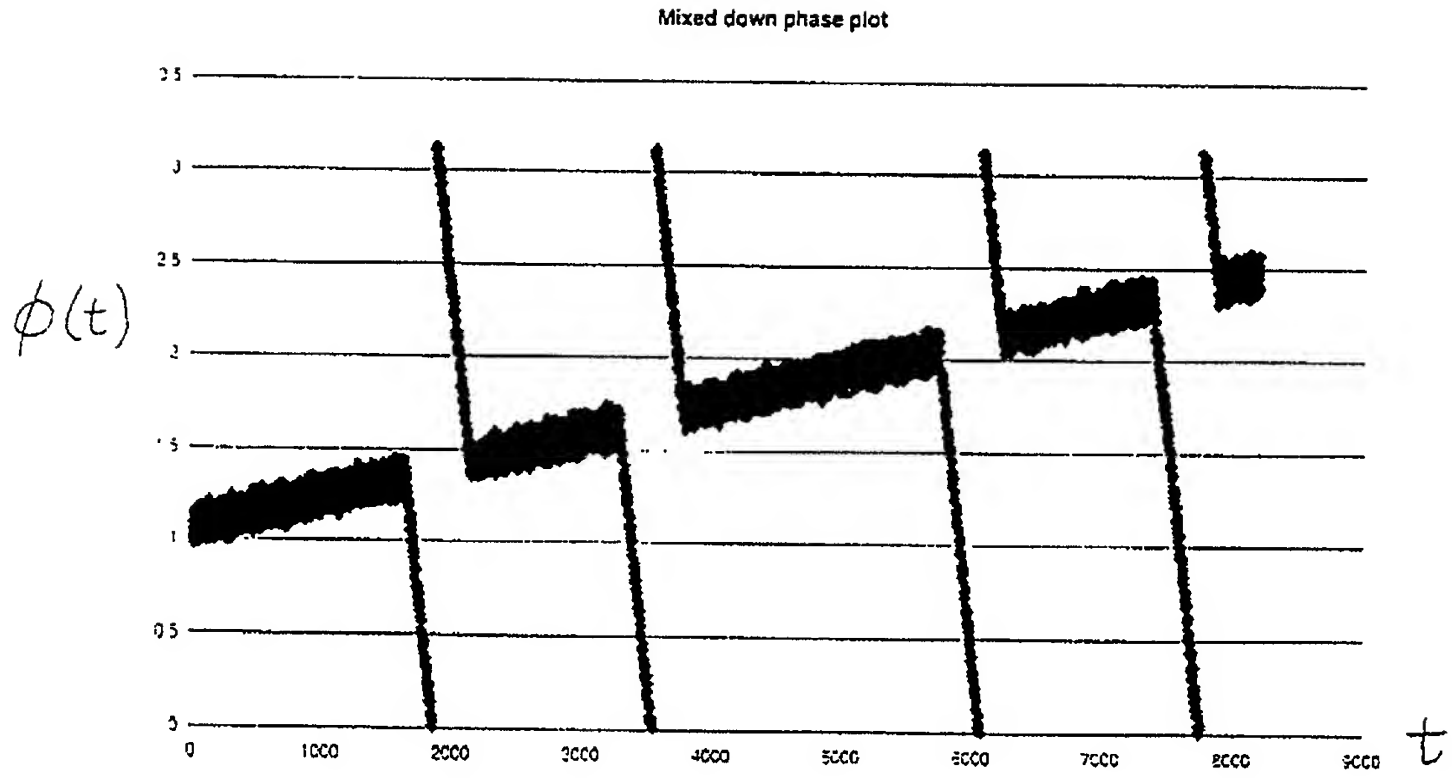

Fig. 7 Phase plot after several iterations

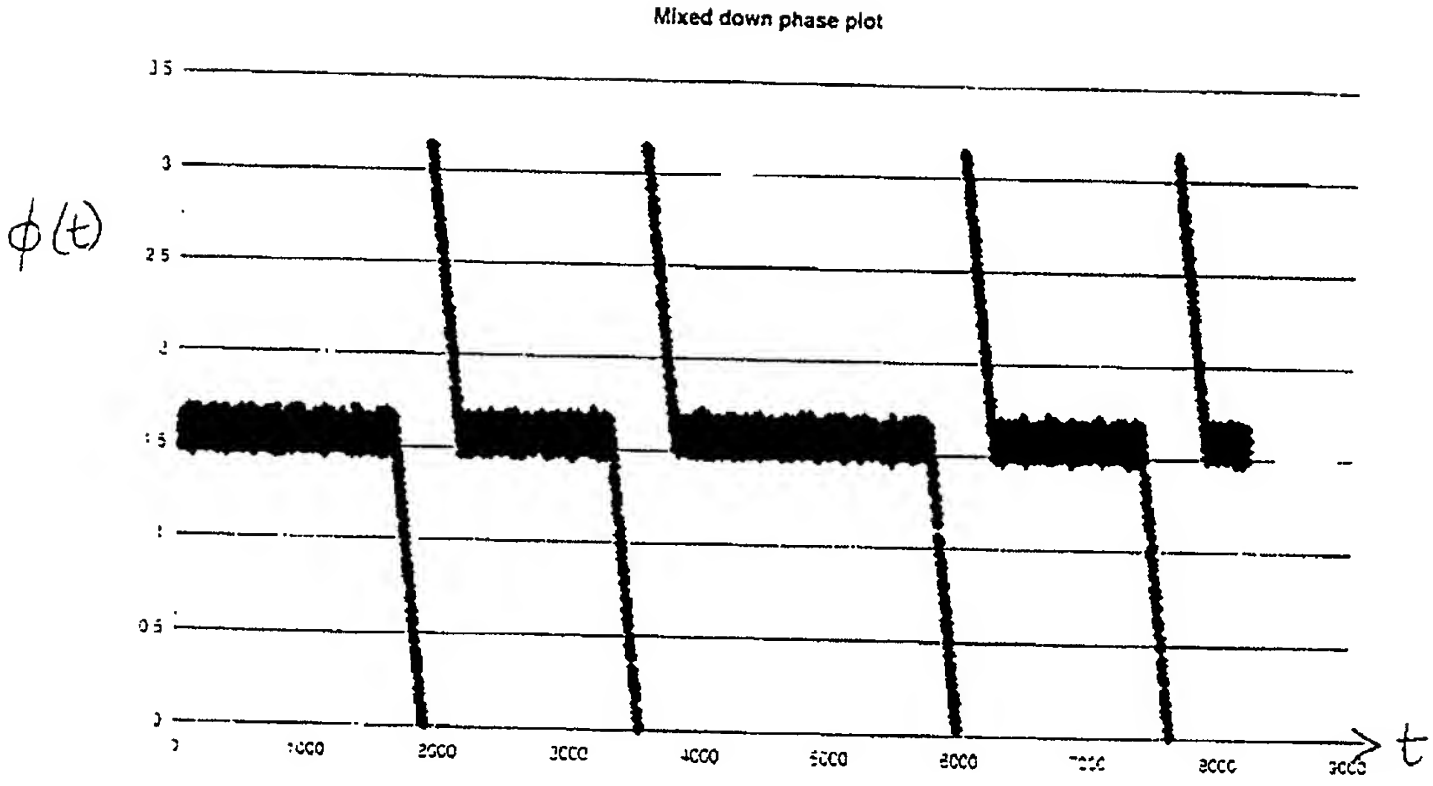

Fig. 8 Final phase plot

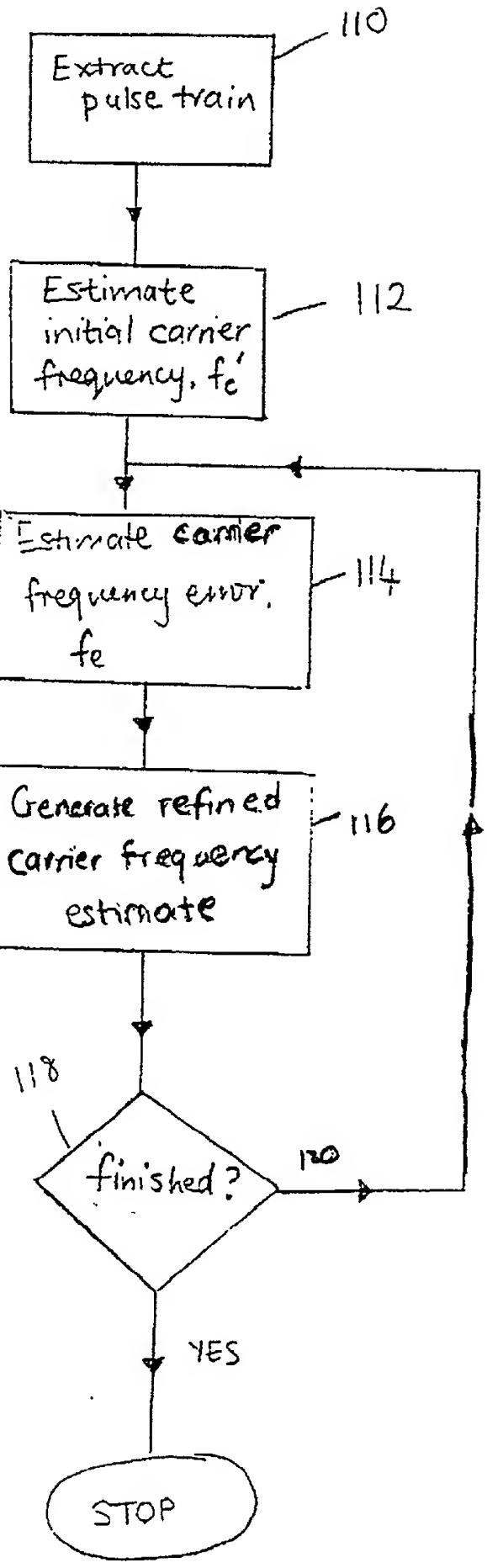
110
Extract pulse train
112
Estimate initial carrier frequency, f_c'
114
Estimate carrier frequency error, f_e
116
Generate refined carrier frequency estimate
118
finished?
120
YES
STOP

Fig. 9

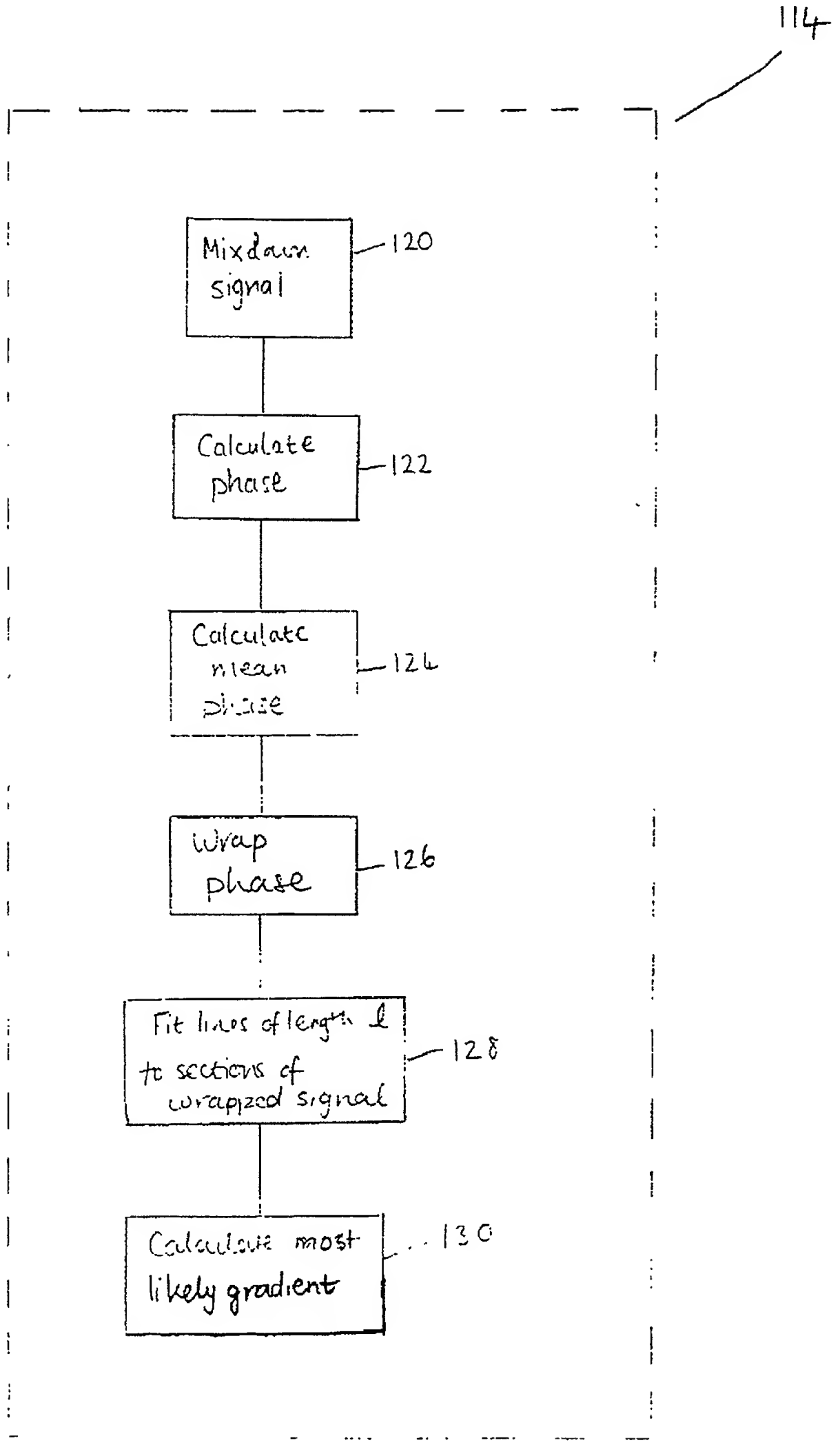
114
Mix down signal
120
Calculate phase
122
Calculate mean phase
124
Wrap phase
126
Fit lines of length l to sections of wrapped signal
128
Calculate most likely gradient
130

Fig. 10

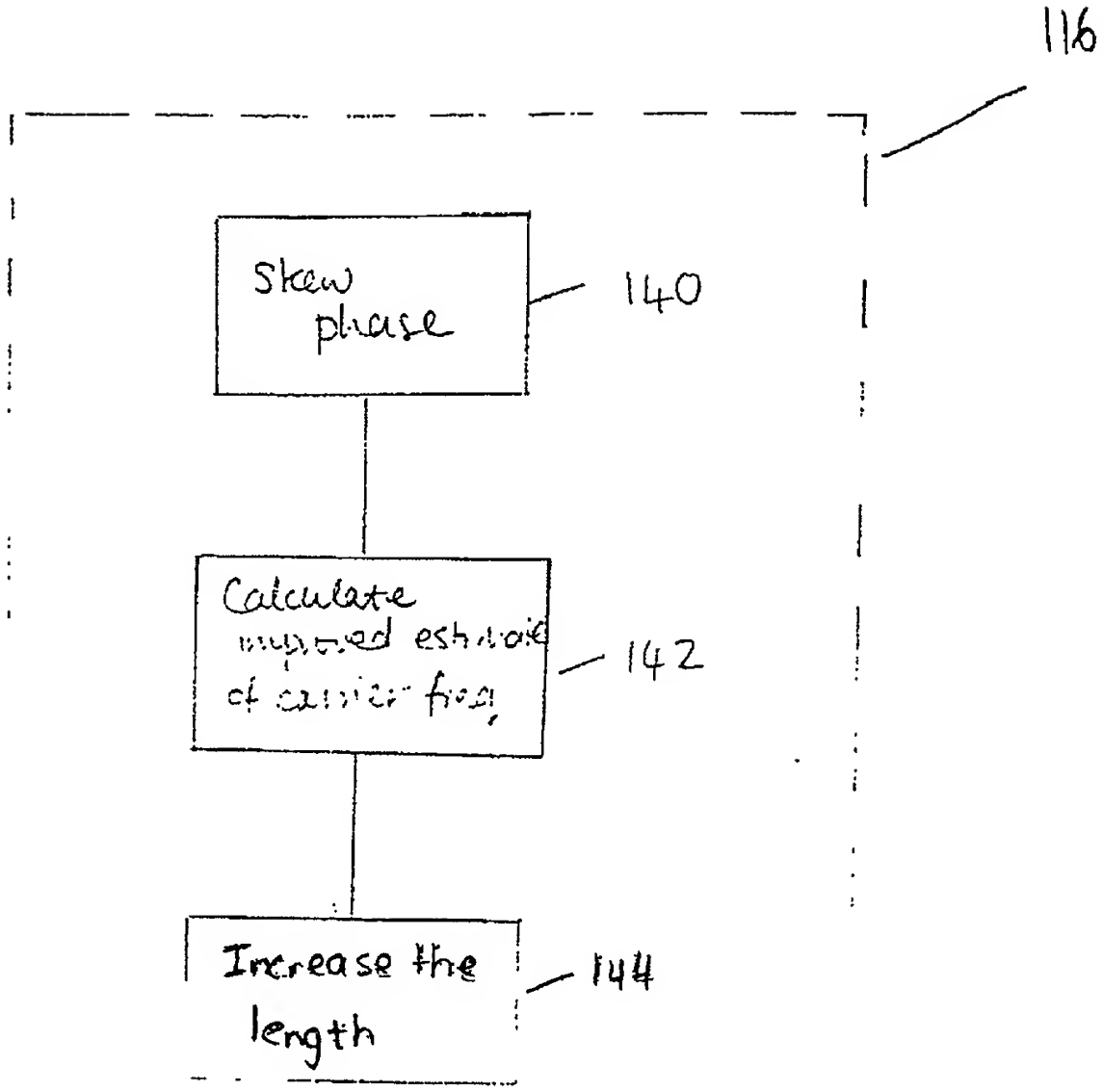

Fig. 11